

Remarks

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested.

Claims 9, 23 and 24 have been allowed. Claim 21 has been indicated as containing allowable subject matter. The Applicants would like to thank the Examiner for this indication of allowable subject matter.

Claim 21 has been amended so as to place it into independent form by including the limitations of claim 1 therein. As a result, claim 21 is now allowable.

Claims 1-8 and 22 have been rejected under 35 U.S.C. §102(e) as being anticipated by, or in the alternative under 35 U.S.C. §103(a) as being obvious over, Lehman (US 2003/0181139). Claims 1-8 and 22 have been rejected under 35 U.S.C. §103(a) as being obvious over Lehman (US 6,707,540).

Claim 1 has been amended so as to include limitations similar to those contained in claim 22 and claim 22 has been canceled without prejudice or disclaimer to the subject matter contained therein. The above-mentioned rejections are respectfully traversed and submitted to be inapplicable for the following reasons.

Claim 1 is patentable over Lehman ('139) and Lehman ('540), since claim 1 recites a substrate polishing apparatus including, in part, a light-emitting and light-receiving device to emit measurement light from a rotatable polishing table to a substrate along a first direction and to receive reflected light from the substrate for measuring a film formed on the substrate; and a fluid supply passage for supplying a fluid for measurement to a fluid chamber of the rotatable polishing table along a second direction parallel to the first direction to form a liquid column, which is brought into contact with the substrate above the fluid supply passage, the measurement light and the reflected light passing through the liquid column. Lehman ('139) and Lehman ('540) both fail to disclose or suggest the fluid supply passage recited in claim 1.

Lehman ('139) discloses a system for polishing a specimen. The system has a platen 250 mounted on an objective housing 248. The objective housing 248 and the platen 250 have a hole therein where a housing 238 is mounted. The objective housing 248 and the housing 238 contain an inlet 244 that allows fluid to enter a space 245 defined by an upper surface of the housing 238 and a diaphragm 242, and an outlet 246 for removing the fluid from the space 245. (See page 12, paragraphs [0106] and [0107] and Figure 1k).

As discussed above, Lehman ('139) does disclose the inlet 244, the space 245, and the outlet 246 for allowing a fluid to pass therethrough. However, claim 1 now recites that the fluid supply passage supplies the fluid for measurement to the fluid chamber of the rotatable polishing table along a second direction parallel to a direction in which the light-emitting and light-receiving device emits measurement light to form a liquid column, which is brought into contact with the substrate above the fluid supply passage, the measurement light and the reflected light passing through the liquid column. As is clearly illustrated in Figure 1k, the diaphragm 242 of Lehman ('139) acts to contain the fluid, and prevents the fluid from coming into contact with the specimen being polished. Therefore, it is apparent that the configuration of Lehman ('139) does not form a liquid column as is recited in claim 1. As a result, claim 1 is patentable over Lehman ('139).

As for Lehman ('540), it discloses a CMP apparatus 600 for polishing a sample 602. The CMP apparatus 600 has a platen 606 with a hole 608 therein. The hole 608 is configured so as to contain a self-cleaning objective. The self-cleaning objective includes an optical element 610, a fluid pump 612, a fluid outlet 614, and a flowing fluid 613. The optical element 610 directs light to the sample 602 to take measurements thereof. The fluid pump 612 and the fluid outlet 614 act to generate a constant fluid flow of the fluid 613 between the optical element 610 and the sample 602. (See column 13, line 47 – column 14, line 23 and Figure 6).

While Lehman ('540) discloses that the fluid pump 612 and the fluid outlet 614 act to generate a constant fluid flow of the fluid 613 between the optical element 610 and the sample 602, it is apparent from Figure 6 that the fluid 613 flows in a direction that is substantially perpendicular to a direction in which the light is directed to the sample 602 by the optical element 610. Clearly, the fluid 613 does not flow in a direction parallel to the direction in which the light is directed to the sample 602. As a result, Lehman ('540) necessarily fails to disclose or suggest the fluid supply passage now recited in claim 1 which supplies a fluid for measurement to a fluid chamber of the rotatable polishing table along a second direction parallel to the first direction which measurement light is emitted to form a liquid column, which is brought into contact with the substrate above the fluid supply passage. As a result, claim 1 is also patentable over Lehman ('540).

Claims 1-8 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claim 9 of U.S. Application Serial No. 10/854,250 in view of Lehman ('540). This rejection is respectfully traversed for the following reasons.

Initially, it is noted that U.S. Application Serial No. 10/854,250 issued into U.S. Patent No. 6,942,543 on September 13, 2005 and that claim 1 in U.S. Patent No. 6,942,543 corresponds to claim 9 in U.S. Application Serial No. 10/854,250.

As discussed above, claim 1 of the present application now recites that the fluid supply passage supplies the fluid for measurement to the fluid chamber of the rotatable polishing table along a second direction parallel to a direction in which the light-emitting and light-receiving device emits measurement light to form a liquid column, which is brought into contact with the substrate above the fluid supply passage, the measurement light and the reflected light passing through the liquid column. However, while claim 1 of U.S. Patent No. 6,942,543 recites, in part, a liquid passageway communicated with a through-hole in a polishing member, it is apparent that claim 1 does not disclose or suggest the features of the fluid supply passage now recited in claim 1 of the present application.


Further, as discussed above, Lehman ('540) also fails to disclose or suggest the fluid supply passage recited in the present claim 1. As a result, claim 1 of U.S. Patent No. 6,942,543 in light of the disclosure of the CMP apparatus 600 of Lehman ('540) does not render claim 1 of the present application obvious. Therefore, withdrawal of the obviousness-type double patenting rejection is respectfully requested.

Because of the above-mentioned distinctions, it is believed clear that claims 1 and 3-9, 21, 23 and 24 are allowable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1 and 3-9, 21, 23 and 24. Therefore, it is submitted that claims 1 and 3-9, 21, 23 and 24 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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